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Combat Crew

strategic air command

DECEMBER 1985

★★★★



Combat Crew

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ON OUR COVER

“Fill ’er up—ho, ho, ho!”
Combat Crew wishes you
a happy and safe holiday
season.

SACRP 127-1 VOL. XXXV NO. 12 DECEMBER 1985

COMBAT CREW is an internal publication of the Strategic Air Command with the primary purpose of promoting safety. The contents of this magazine are informative and not to be considered as directive in nature. Facts, testimony and conclusions of all mishaps printed herein may not be construed as incrimination under Article 31 of the Uniform Code of Military Justice. All names, dates and places used in conjunction with mishap stories are fictitious. Written permission must be obtained from Headquarters, Strategic Air Command before any material may be reprinted by other than U.S. Air Force organizations. Use of funds for printing this publication has been approved by Hq. USAF. Distribution FX, controlled by IGFE SAC units submit distribution requests through local PDO. Reader to copy ratio 10:1. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Contributions are encouraged as well as comments and criticism. Direct correspondence with the Editor is authorized. Address correspondence to Editor, Combat Crew, HQ SAC/IGFE Offutt AFB, NE 68113, AV 271-2620.

KNOW

Last year in *Combat Crew* magazine, I talked about “knowing your stuff” and how to prepare for your job as a professional, dedicated combat crew member. I gave you some pointers on how to make the best of your training and how to make that training as valuable as possible. I emphasized that your knowledge of the entire weapon system is critical to your success.

Success can be measured. It equates to victory in combat and safe training in preparation for combat. In our daily effort to train for combat, we face many decisions and risks intrinsic to the operation of our weapon systems. A famous quote reiterates this risk: “Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity, or neglect.” This same line of reasoning applies to our missile systems as well.

Carelessness, incapacity, and neglect are human failures. When they are allowed to enter our training and combat operations, the result can be tragic. We have demonstrated the validity of this many times in the Strategic Air Command. Each time an aircraft crashes, the command not only loses combat resources, but also endures the personal tragedy and negative impact on morale associated with the loss of life.

We have an active, aggressive safety program designed to prevent mishaps. We investigate them, isolate the causes and make recommendations designed to prevent additional mishaps. This process has worked well and has led to many changes in hardware and in operations and maintenance procedures. As a result, the command’s record reflects the overall Air Force trend toward fewer mishaps.

The good news is the trend toward fewer logistics-related mishaps. The bad news is a trend toward more mishaps attributed to human failures. There are quantifiable reasons for the reduction in logistics-related mis-

YOUR STUFF?

haps. The difficulty comes in trying to understand the reason for the increase in human failure mishaps.

Unfortunately, many of the lessons learned from mishaps are not new. We continue to see mishaps caused by human failures that had been identified previously as potential problem areas. We rarely demonstrate a new way to "buy the farm." Instead, we change the script slightly, have a mishap, and then proceed to shift the cause from human failure to training programs, technical orders or materiel — items easily fixed when compared to the complexities of correcting human failure.

Traditionally, tragic human failure mishaps have resulted in numerous changes to publications, technical orders, regulations, etc. These changes were made to prevent recurrence but, in some cases, have proven to be inadequate. I believe a major reason for this is that people do not fully understand *why* the original mishaps occurred and, therefore, place corrective action emphasis on the symptoms instead of their causes. We can, and must, correct this inadequacy by taking advantage of the lessons learned. Instructors and commanders can do this by emphasizing those lessons in simulators, classroom training, hangar flying sessions and safety meetings. Crew members, however, must learn and apply these lessons in their day-to-day activities since that is where simple mistakes escalate into tragedy.

Several of our 1985 mishaps serve as somber reminders of an imperfect corrective action process and also demonstrate the contributions of "... carelessness, incapacity, or neglect..." They involved people who supposedly understood their weapons system. They understood the basics of aerodynamics and the physics involved in their weapons systems. They were not complacent individuals; in fact, they had repeatedly demonstrated their "outstanding" ability and that they "... knew their stuff..." Somehow, though, the end result was fatal.

This command consists of talented, intelligent combat crew members. It is indeed unfortunate when one of them makes a mistake. You, and only you, are the key to preventing mistakes. You can do this by reviewing the lessons learned from past mishaps, understanding the "*why*" of those mishaps, and applying that knowledge to your day-to-day job. Then, and only then, can you be confident that you really "... know your stuff..." ★★★



Lt Gen James E. Light, Jr.
Commander, Fifteenth Air Force

Thoughts for the Holidays

As our calendars begin to become crowded with parties for the holidays of Hanukkah and Christmas, we risk losing some important time for our private self. There is an aspect of preparation for the holiday season which cannot be accomplished by a party. Let me explain. A large portion of the Old Testament, particularly the Prophetic Books, focus upon a time of sadness and mourning over personal and national history. It was the context of sorrow which launched the sense of expectation and hope for deliverance, and anticipated the redemptive acts of God. We, however, seem to structure our personal lives by going to any extent to avoid a time of mourning and sadness. We generate festivities, and if a tinge of sadness begins to emerge, we immediately look for outlets to desensitize ourselves and revive our spirits. The last thing in the world I want to be is a "party pooper" and spread gloom and doom all over the place. My other choice, therefore, is to spend some time alone to reflect and meditate on my pain and sorrow which has been a part of my life. Hopefully, these periods become a working through sadness to a wiser, enriched, more appreciative stance in life. An American author said, "He who lacks time to mourn lacks time to mend . . . life mourns that." Hamilton, a poet, said:

I walked a mile with pleasure,
She chattered all the way,
But left me none the wiser
For all she had to say.

I walked a mile with sorrow,
And ne'er a word said she:
But, oh, the things I learned from her
When sorrow walked with me.

I should say a word of warning here, meditation on failures, apart from a basis of faith and hope, can really be the pits and lead to despair. For me, I view not myself alone, but in relationship to a God who offers steadfast love and mercy, who forgives, and forgives again - the God of the scriptures. He is the God who took the disjointed and often rebellious history of Israel in the Old Testament, and gave the wandering people an identity and purpose. Those Hebrews became Israel, which means the Prince of God. For the Christian, he is the God who weaves together the lives of a carpenter, a virgin, shepherds, and wise men, and from this strange, disjointed group, produces a Saviour. Even so today, that God gathers together the broken, painful, pieces of life, and produces a beautiful work of creation, you and

me, and then amazingly calls that creation a child of God. Gathering together the broken pieces of life is called sorrow, offering those same pieces to God is called redemption. Dr. Weatherford of England was in Persia watching the weaving of a Persian rug. He said to the man watching with him, "What happens when a boy makes a mistake?" "Well," the man said, "Quite often the artist doesn't make the boy take out the wrong color. If the artist is a great enough artist, he weaves the mistake into a beautiful pattern." My friends, God is that kind of an artist with our lives.

Whether you celebrate Hanukkah or Christmas at home or in an alert facility, or a remote location of God's world, may God weave a pattern of peace, joy and meaning into the fabric of your life. May this expectation bring a celebration to your life this holiday season.





PEACEKEEPER: To Keep the Peace

Maj Al Duff
HQ SAC/XPO

On 23 August 1985, in the chilly fog of an early morning at Vandenberg AFB, California, a large group of Air Force and contractor personnel anxiously watched the sky. Just after 0900, the fog began to lift and move out to sea. As the skies rapidly cleared, the group focused its attention on a missile silo nearly three miles to the north, where a PEACEKEEPER missile waited. The missile, ninth in a series of twenty flight test missiles, would be the first launched from a modified MINUTEMAN silo.

The countdown proceeded smoothly, and at 0940, in a cloud of white smoke, the PEACEKEEPER leaped from its silo, ignited its first stage, and streaked into the cloudless sky. Thirty minutes and

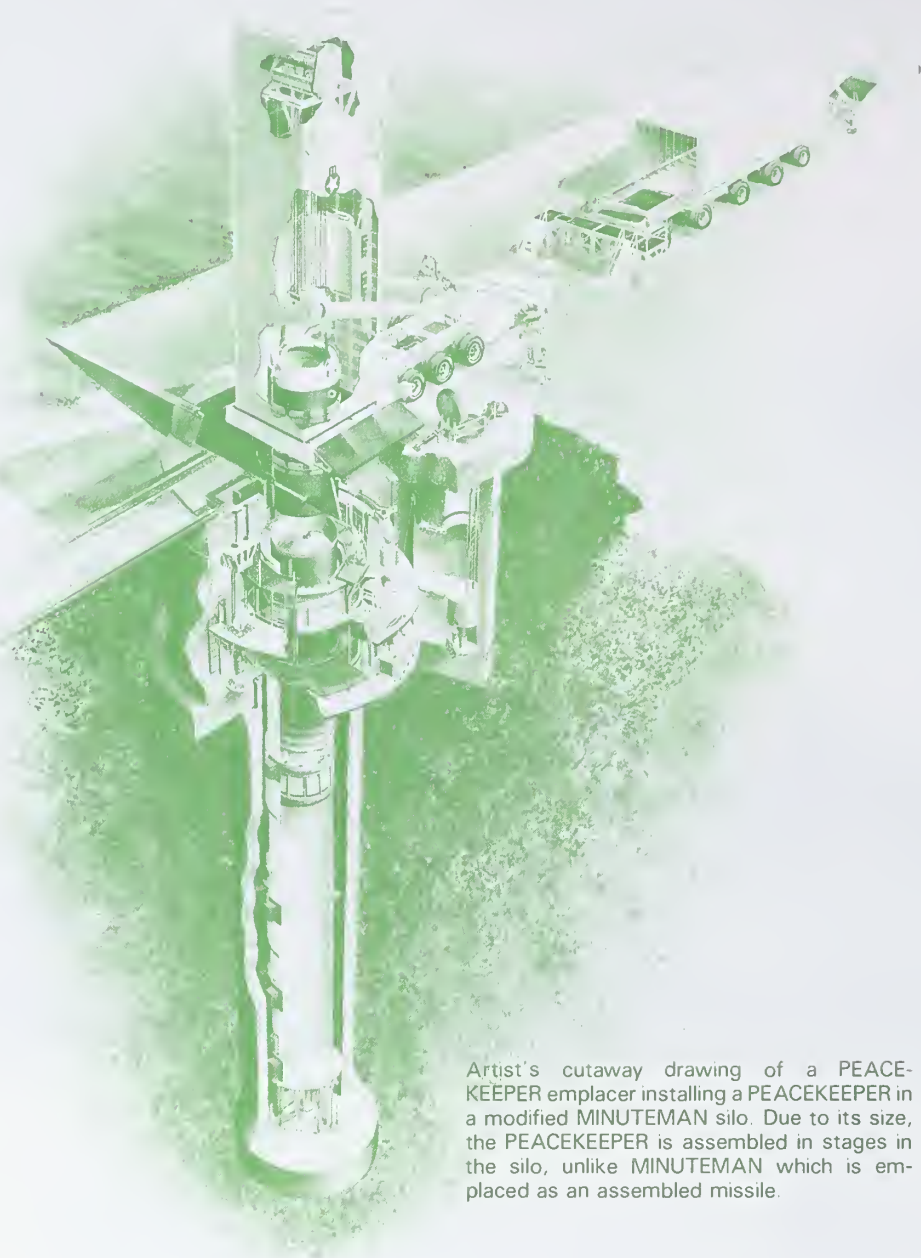
4100 miles later, the six unarmed MK21 reentry vehicles splashed down in the lagoon of the Kwajalein Missile Test Range in the Pacific Ocean, completing a near perfect test mission.

PEACEKEEPER, originally called the MX, is designed to improve U.S. capability against hardened targets which require a prompt strategic response. This countermilitary capability places at risk those targets which pose the greatest continuing threat to the U.S., thus enhancing our deterrent strategy. PEACEKEEPER will ensure the U.S. can maintain that capability, and is essential to bolster our current aging ICBM force.

The PEACEKEEPER, a four-stage intercontinental ballistic missile, is

designed to carry 10 independently targetable reentry vehicles and has a range in excess of 5000 miles. The 195,000 pound missile is 72 feet in length, nearly 8 feet in diameter, and, due to its advanced guidance system, twice as accurate as MINUTEMAN III missiles on alert today. Plans call for 50 PEACEKEEPER missiles to be placed in existing MINUTEMAN silos near F. E. Warren AFB, Wyoming, with initial operational capability scheduled for December 1986. All 50 missiles in MINUTEMAN silos will be on alert by December 1988.

The initial cadre of missile combat crews for PEACEKEEPER has been chosen from volunteers who have experience in the MINUTEMAN Modernized/Command



Artist's cutaway drawing of a PEACEKEEPER emplacer installing a PEACEKEEPER in a modified MINUTEMAN silo. Due to its size, the PEACEKEEPER is assembled in stages in the silo, unlike MINUTEMAN which is emplaced as an assembled missile.



Data Buffer weapon system. A select few of these crews will receive special training from contractor personnel, and in turn will train and evaluate the remainder of the initial crews. Programs developed by this cadre will be used by the 4315th Combat Crew Training Squadron at Vandenberg AFB to train new crew members in the same manner as today's MINUTEMAN launch officers.

Construction of new facilities at F. E. Warren AFB is proceeding rapidly. On-base work is well underway, with a new launch facility trainer; a missile procedures storage area slated for construction. The first MINUTEMAN missile will be taken off alert in January 1986 to allow for modifications required for the PEACEKEEPER. The major changes at the silo are surface modifications to accommodate the larger PEACEKEEPER equipment, and removal of the top six feet of the silo liner to permit in-silo assembly of the missile. By comparison, launch control center

The PEACEKEEPER emplacer, showing the tractor-trailer configuration used to move the emplacer between the silos and the support base.



The PEACEKEEPER emplacer demonstrating its ability to rotate a missile stage to a vertical position above the silo. A hoist, located in the upper section of the emplacer, is used to lower the missile elements into the silo.





modifications are relatively few, with equipment panel alterations, new computer software, and new message processing capabilities being the principal changes.

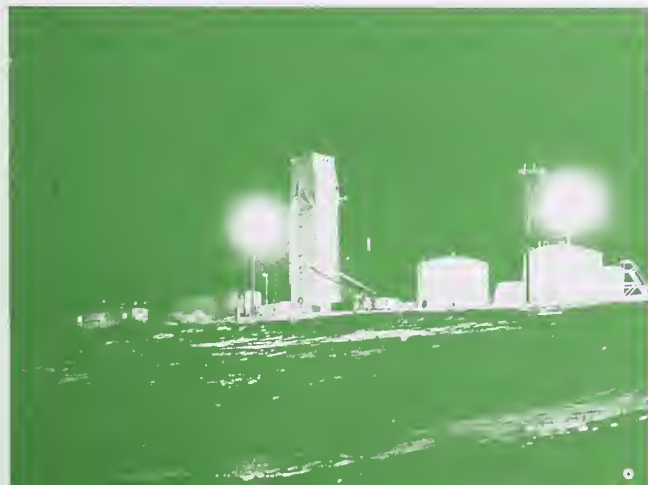
An aggressive program is underway to identify a basing mode for the next 50 PEACEKEEPER missiles, to comply with Congressional action which capped the PEACEKEEPER in MINUTEMAN silo program at 50, and mandated that an alternative basing mode, approved by Congress, be utilized for the balance of the deployment. The Ballistic Missile Office (BMO), SAC Headquarters, and the Air Staff are working this challenge hard in order to avoid any interruption in meeting America's deterrent needs.

When the first PEACEKEEPER missiles go on alert at F. E. Warren in late 1986, they will join a proud tradition of peace through strength which stretches back to the 1950s when ICBMs were first placed on strategic alert. PEACEKEEPER, the first new ICBM system to be fielded in 20 years, serves as a vivid reminder of the U.S. resolve to maintain a credible deterrent capability.



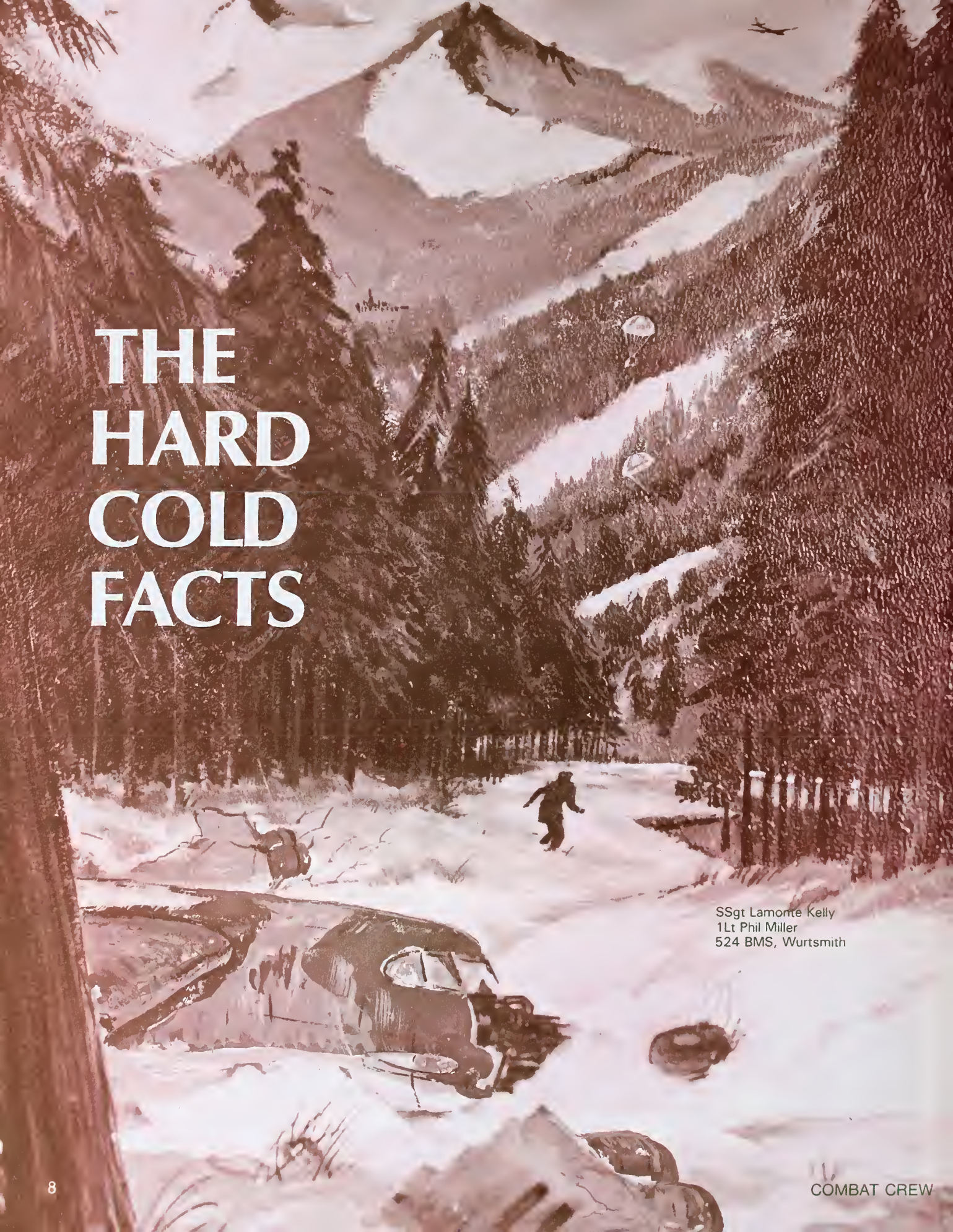
PEACEKEEPER Flight Test Missile #5 lifts off from a test pad at Vandenberg Air Force Base, California, on 15 June 1986.

The top section, which contains the hoist used to raise and lower missile elements, is hinged to allow elements to be rolled into the emplacer when it is in the lowered position.



Time lapse photograph of six unarmed MK21 reentry vehicles in the sky over Kwajalein Missile Test Range.





THE HARD COLD FACTS

SSgt Lamonte Kelly
1Lt Phil Miller
524 BMS, Wurtsmith



“So what do you do now? IT’S COLD! And there was no MAYDAY message sent.”

Have you ever thought about what it would be like to eject from your aircraft in a winter, mountainous environment? Not a pleasant subject, but a formal crew plan for survival should be a routine aspect of mission planning, along with abort and flight procedures.

Let’s say, for instance, that your B-52 crew is tasked with a routine night STRC training flight in February — the dead of winter. Blowing snow and icy windshields force you to IFR altitudes. The flight is going smoothly until point M, when the pilot informs the crew that the flight controls will not move and have possibly frozen. He has made every effort to free them with no response. The bailout light (remember that red light that’s always “tested” but never used) comes on and the aircraft commander informs the crew to “standby to bail out.” Just like the book says, the steady light appears,

ejection follows smoothly, and you are floating to earth in a good parachute.

So what do you do now? IT’S COLD! And there was no MAYDAY message sent. Do you remember the lessons taught you by your survival school instructor? I can honestly say that I can’t remember everything that mine taught me. So here are a few pointers to prompt your memory and brush up your survival skills. While floating down in your parachute, check around for town lights, power lines, trees, and other memorable points to get your bearings, remembering that trees and power lines can also ruin your best PLF. If you are not sure of your position, always prepare for the worst.

Once on the ground, take a few minutes to collect your wits. You have just been through an extremely stressful experience. Drink some water and form your plan. Hypothermia, shock and injuries should be dealt with first. Try to

stay calm. Keep warm and drink more water, but never eat snow. If necessary, snow should be melted down into water a little at a time in your ration can. Above all, stay calm and compose yourself to preclude shock.

Start a fire immediately, if possible, using flares if you must. A fire provides warmth, light and serves as a good signaling device. Do not allow hypothermia to set in. Hypothermia begins with feeling cold, followed by the shakes. If not treated, you will start to shake violently and become very tired. **Do not go to sleep!** Most hypothermia deaths occur when the victim falls asleep. Look around you and gather your equipment. Treat any broken bones, sprains or cuts that you may have suffered. First aid will be vitally important and you should brush up on it as well. It is also a good idea to carry your own personal survival kit. Suggested items for the kit are listed below and can be obtained at any hardware

store. Do not travel immediately. The fire will keep you warm and possibly alert others of your position.

Your best friend at this time might very well be your survival radio. Attempt to contact other crewmembers and determine their location and condition. Direct them to your fire or go to theirs if terrain, illumination and physical conditions permit. Remember to keep your radio batteries warm. They only last 12 hours or so in below freezing temperatures.

At this point, you should consider building a shelter. The lean-to is probably the simplest, requiring only a large stick and your parachute. Don't forget your sleeping bag, as it is vital to help keep you warm.

If you're still not rescued when morning comes, don't be alarmed. Your airplane could have crashed many miles from your position and without a MAYDAY call, you will not be missed until overdue for landing. Now is a good time to locate any missing crew members. Use all possible sig-

naling devices including radio, flares, mirror and whistle to find them. Once you have joined up with the crew, do whatever you can to keep the injured warm and dry while awaiting rescue. Travel to the nearest civilization only if you know exactly where you are and where you are going.

Recent experience has proved the absolute necessity of having a crew survival plan, as well as knowing the equipment in your seat kit. A partial list of this equipment is found below. Your life support shop specialist will be more than happy to go over the use of each item and how to best employ it.

In summary, collect your wits, collect your equipment and avoid hypothermia. You can survive, but it requires knowledge, determination and preparation.

While this article presents a general overview of cold weather survival, keep in mind that the circumstances and environment encountered will dictate the specific actions required in each survival situation. Ed.

Personal Survival Kit

- Matches or fire-starter kit
- Gloves
- Fishing line and hooks
- Snare wire
- Aluminum foil
- Needle and thread
- Knife with multi-blade
- Aspirin

Aircraft Survival Kit

- Radio with beacon
- Flares
- Sleeping bag
- Signal mirror
- Compass

About the Authors

SSgt Lamonte Kelly entered the Air Force in 1974. After crosstraining into the gunnery field, Sgt Kelly was assigned to the 340 BMS at Blytheville AFB. He currently serves as a flight instructor at Wurtsmith AFB. 1Lt Phil Miller is a 1981 graduate of the U.S. Air Force Academy. He completed UNT in 1982 and is now assigned to the 524 BMS at Wurtsmith AFB as an electronic warfare officer.

Col Rich Pilmer
Human Factors, Air Rescue Service
Scott Air Force Base

Cold Weather Survival: 10 Quick Reminders . . .

Number ONE!

The military survivor's mission is to evade the enemy and return as soon as safely possible. The ultimate goal is the same as the requirements for success: good physical and mental condition.

2. Neither the Air Force nor nature can present you with the will to survive. But the more you are **prepared**, the easier it will be to cash in on your determination.

3. Keep dry. Avoid snow blindness. Check for frostbite. Stay near the aircraft. Especially don't try to walk any distance after water immersion. Build a fire, take shelter, and remove any wet clothes. Also remember that overexertion can cause dehydration due to perspiration under clothing or insensitive water loss through the lungs.

Snow blindness can occur even on cloudy days. If you don't have glasses, cut eye-slits in wrap around material.

The first sensation of frostbite is numbness rather than pain. If you failed to detect grayish or yellow-white areas before freezing, warm them as soon as possible in water between 105 and 110°F. (Lukewarm to normal hand feeling).

4. Prevent Hypothermia. When body temperature begins to fall below the normal 98.6°F the most common

first sign is shivering. This is followed by decreased blood flow to the brain. Judgment and willpower may become impaired and there is difficulty in talking and walking. Below 86°F shivering stops and the muscles become rigid.

5. A fire is a lifesaver! Always keep water proofed matches in your flight suit pocket or survival gear.

6. Melt snow or ice (better) for drinking water.

7. Cook all food sources. It adds to body heat, warms your spirits, and decreases the chance of viral or bacterial intrusion.

8. Build a shelter in the first daylight. Insure adequate ventilation for small fires. In crew situations, rotate one person near the entrance to listen for aircraft sounds (snow is an insulator).

9. Keep aircraft surfaces swept off to provide contrast for airborne rescuers. Tramp out snow signals. Cut vegetation to maximize contrast between the snow and the aircraft. Have "bird nest" (quickly flammable) signal fires set in position ready to light.

10. Keep your feet warm and dry. Exercise toes and feet. Loosen footwear periodically. Elevate feet and legs during rest intervals.

Call on prayer or meditation. Keep a log of your activities. Hang in there. The USA needs you and will move heaven and earth to find you.

A Compass For Christmas

This story is contributed in behalf of the daughters and sons of all flyers who go about their daily flying jobs seldom considering that at home or in school their children's thoughts are with them. Although these daughters and sons do not talk flyboy lingo, they may feel their hearts skip or their pulses quicken whenever they hear the roar of jet engines overhead.

After fourteen years of flying in Uncle Sam's airplanes, it has taken my two daughters to teach me a vivid lesson in safety. I had always assumed, like the majority of flyers today, "It can't — or won't happen to me."

Christmas morning, as I carefully opened my daughters' small, neatly wrapped package which I knew they had purchased from their carefully saved allowance, I tried to visualize what it might be. A set of cuff links? Tie clasp? Ring? On opening the box, a note appeared. It read: "To Daddy — Please wear when you fly. From Shannon and Mary." I was now certain it was a knife, but as the tissue unfolded, a small velvet pouch dropped into my hand. I was completely at a loss for words as I drew the string and removed their gift — an engineer's directional Lensatic compass.

My oldest daughter who was watching me very intently as I opened the gift, supplied the impact that really jolted me out of my complacency to the safety consciousness I should have always possessed. She said, "I want you to wear this compass when you fly so you can't get lost in the woods like the other men."

Christmas blessings versus tragedy were my mixed emotions as my girl's



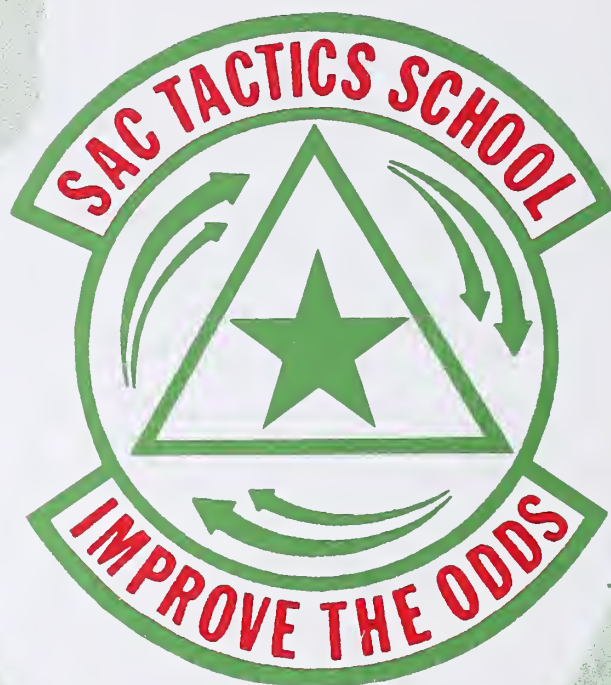
words entered my mind. At that moment, within the confines of the base hospital's critically injured room, a B-52 crew member was celebrating Christmas with the knowledge that he would lose his feet and possibly his legs because of lack of preparedness for ground survival in an air emergency.

Two weeks before, he and his crew members bailed out of their plane into the snow-covered forest in an isolated area in northern New York. Rescue operations from civilian and military personnel in the area had painstakingly picked up the crew members one by one. Despite their relatively quick pickup, the ordeal had taxed them to the utmost. Snow, waist high in places, tired them quickly and without the benefit of a compass their task of walking out was impossible. They were suffering not only from the pains of hunger and bone-chilling cold but from the nemesis of all winter travelers — frostbite.

Complacency, born from confidence that "nothing ever happens that we can't handle," caught the eight men totally unprepared even though they had the benefit of the Air Force's extensive survival training program.

Today — and for every flying day to come — I shall wear the compass, not only as a memento to my daughters' wisdom but also as a reminder of my own awakening to the reality that, it could happen to me.

ENHANCING INTELLIGENCE



CE SUPPORT

SAC Tactics School
Nellis AFB

Are you disappointed with the intelligence support you are getting? Do you question the usefulness of the information received from your unit intelligence personnel? One possible cause may be that some combat intelligence personnel are not familiar enough with your assigned weapon system. Besides being unfamiliar with

airframe, avionics, and other characteristics of the weapon system, intelligence personnel are probably unfamiliar with crew member duties and how these duties are integrated during flight operations. In fact, a common complaint heard from Armed Forces Air Intelligence Training Center graduates during their initial assignment to a SAC flying wing is that training was not oriented toward intelligence duties in a SAC unit. This underscores the need to bring these experts quickly up to speed on aircrew activities so they can become more effective members of the operations team.

This article addresses local solutions to introduce new intelligence officers and airmen to the wing's mission, acquaint them with the duties of the operations personnel, and help them learn about the wing's weapon systems, including avionics, weapons, capabilities and limitations.

Perhaps the best way to familiarize intelligence people with the weapon system is to arrange for them to fly on wing training missions. An orientation flight can be an important step in establishing rapport between intel and ops types and helping them to speak the same language. The more the intelligence world understands what it takes to fly and fight in a given environment, the better they will be able to provide crew members with the **right** kind of intelligence information. Initially the intelligence person will tend to concentrate on the electronic warfare (EW) officer's position, since the EW world is what most intel folks are most familiar with. It is important to know and understand what the EW sees on his various scopes, how he analyzes and interprets this information, and what he does to combat the threats that the various symbology represents.

On the other hand, this kind of knowledge can be readily obtained by participating in a weapon system

trainer (WST) "flight." More important on a training mission are the tactics of flight in general and crew coordination in particular. To illustrate, let's look at a hypothetical situation. Suppose during a B-52 mission, the EW detects a threat on the ALR-46 scope. Responding, he notifies the crew and requests a left turn to avoid the threat. However, not being able to discern terrain features, the EW is unaware of a suitable ridgeline to the right that the aircraft could "hunker down" behind using terrain masking to defeat the threat. But the radar navigator (RN) does see the terrain on his scope — confirmed visually by the pilot and copilot — and advises the pilot to turn right to take maximum advantage of this terrain. The pilot team visually scans for the threat, assimilates the threat information from the EW and terrain information from the RN, banks right, and successfully avoids the threat.

What could the intelligence officer/NCO learn from this? First, he/she becomes aware of the responsibilities of all crew positions, their capabilities, and the information each crew member requires to perform his portion of the mission. It underscores crew coordination, especially the speed and volume of inputs that impact the aircrew, and how quickly they must respond. It will also help make clear how an aircraft flies, how it responds, and its maneuvering capabilities. Finally, it provides a graphic understanding of the physiological factors impacting a crew during a long mission, extended low-altitude flight, and stressful circumstances.

While some of this understanding can be derived from WST simulations, there is nothing like actual flight to press home the lessons and build confidence. This will lead to an increased awareness of what the crew member needs from intelligence, and what intelligence can do to help wing crews to fly, **fight and win!**

When was the last time you accomplished manual boom latching (MBL) procedures? If you're like most crew members, it has probably been awhile. This month we will review MBL procedures and suggest you practice the procedures before they become an operational necessity, perhaps during an ORI or overwater deployment.

MBL is not particularly difficult, but not being a training requirement, many crews are not comfortable with it, nor fully understand what it entails. Presently, MBL is not required for initial qualification training (boom operator or receiver); however, HQ SAC is considering reinstating it as a part of initial qualification training and possibly as a recurring requirement. Proficiency in MBL procedures is required for boom operator instructor upgrade; however, it is only a familiarization item for receiver instructor pilot candidates. To ensure a successful MBL, all receiver pilots and boom operators need to know what goes on in each aircraft.

First, let's review some systems operations. One problem we see at CFIC is confusion between tanker manual operation (TMO) without disconnect capability and MBL. TMO without disconnect capability mainly concerns the tanker air refueling system. The need for employing TMO without tanker disconnect capability arises when the boom is seated in the receptacle, the receiver system advances but the tanker system does not, and the boom operator cannot effect a disconnect. This is normally caused by a tanker signal coil malfunction. On the other hand, MBL comes into play when the receiver and tanker air refueling systems will not advance to contact made automatically. This is normally a malfunction of the receiver's signal amplifier. If the air refueling must be conducted (within present restrictions), both the tanker boom operator and receiver pilots must manually advance their systems to "contact made." In this configuration only the receiver pilot can release the toggles to accomplish a disconnect.

Now assume we have coordinated



Manual Boom

CFIC,



om Latching

le AFB

the need for MBL operations and the boom operator is properly trained. The boom operator is first required to read the statement in the air refueling manual concerning MBL to the receiver pilot prior to accomplishing contacts. But this is not enough!

Prior to accomplishing MBL contacts at CFIC, a great deal of coordination on specific actions is accomplished during mission planning. This coordination has proved to be invaluable in successfully completing the maneuver. Since you probably will not be afforded this opportunity when MBL is unexpectedly required, the boom operator should at least consider expanding the briefing to include when extend pressure will be applied, when it will be released and how each action will affect the receiver.

After reviewing the procedures in the air refueling manual, the receiver should move to the contact position with the signal amplifier power switch in MANUAL and the toggle latching switch in the RELEASE position. The boom operator will establish contact by seating the boom nozzle in the air refueling receptacle and actuating the emergency contact made switch. The boom operator will then hold slight boom extension pressure and state "contact." This contact call is very important because it is one of the keys the receiver uses to advance the receiver's system. The boom operator will continue to hold extend pressure until the receiver announces "contact." This extension pressure prevents the boom from floating out of the receptacle before the receiver pilot moves the toggle latching switch to HOLD. This is where careful planning by the receiver pilot is required. The pilot must compensate for the extension pressure by adding power to prevent being pushed off the aft limit. The receiver **must not** switch to HOLD if being pushed near or past the AFT limit. To do so with the toggles latched may result in a brute force disconnect and cause serious damage to both aircraft. After being cleared by the receiver pilot, and with both a ready (blue) and a contact (green) light on, the receiver copilot will

place the toggle latching switch to the HOLD position. The receiver pilot or copilot will then announce "contact" on the radio, and the boom operator will relieve the extension pressure. As extension pressure is relieved, the receiver pilot must reduce power to prevent moving toward the inner limit.

If the boom operator lets the boom float out of the receptacle after announcing "contact" and before the receiver states "contact," the boom must notify the receiver of the negative contact and reaccomplish MBL procedures. This prevents the receiver from going to HOLD after the boom is out of the receptacle and causing the boom operator to attempt reseating the nozzle into the receptacle, which could result in receiver toggle

damage. If the receiver copilot insures that both green and blue lights are on when going to "HOLD," this problem can be avoided. When a need for a disconnect occurs, the receiver pilot will disconnect by pressing the autopilot and air refueling (IFR) boom release button to release the toggles, and inform the boom operator. The boom operator will actuate the disconnect switch and when the boom nozzle is free of the air refueling receptacle, retract the boom. The release button must be held by the receiver pilot until visual inspection reveals the boom is clear. This procedure takes time, so be sure to consider this if approaching an air refueling envelope limit. If this procedure fails to give a disconnect, there are

several options available, one of which is a pressure disconnect with those aircraft equipped with a pressure disconnect switch. Remember to limit the number of MBL contacts to the minimum required.

The key to a safe and successful mission is knowledge of systems, thorough mission preparation, sound judgment, and crew coordination. As in all emergency situations, STOP, THINK, and TAKE THE APPROPRIATE ACTIONS. Manual boom latching requires effective coordination between tanker and receiver crews, so don't hesitate to talk to each other both on the ground and in the air. If there are any questions concerning MBL, give us a call at Autovon 347-2235, Castle AFB, CA. 

Boom Reliability Panel (BRP): Open Crossfeed Concerning a Critical System

SMSgt Roger Lamanna
509 BMW, Pease

Is your unit experiencing boom problems? Any SAC wing operating KC-135 or KC-10 aircraft has them. However, some wings may have more than their fair share of discrepancies against this important system. If you feel you're having too many in-flight refueling (IFR) problems, you may want to form a "Boom Reliability Panel." It can provide tangible benefits while improving IFR system reliability and capability rates.

The basic concept is to engage pneudraulic systems technicians and boom operators in an open crossfeed of information. The lines of communication between these two essential groups are often taken for granted, resulting in less communication than expected. An open forum can relieve frustration and reduce additional work for both the maintenance and operations communities.

The Boom Reliability Panel is relatively easy to establish and implement. It should be comprised of at least one boom operator, ideally the wing's senior boom, and various maintenance personnel. Highly qualified pneudraulic technicians with in-depth systems knowledge and experience on the IFR system are a must. Also, an aircraft crew chief with good knowledge of general aircraft maintenance should be invited. A quality assurance inspector is handy to clarify any technical data requiring interpretation. Finally, the wing technical advisor or the Aerospace Systems Branch Chief should be included; either would be an excellent choice as moderator or chairperson. After identifying panel members, establish a location, date and time for the initial meeting.

Here are a few items that need to be addressed at your first meeting:

- Purpose and objectives of the panel.
- Decide on regular meeting dates and times.

- Select a recorder to prepare and distribute minutes.
- Review your wing IFR reliability and capability rates.

Once those issues are settled, here are a few agenda items that should help to break the ice at this first session:

- Get the senior boom operator's opinion of the wing's IFR systems.
- Discuss clarity of AFTO Form 781A entries: is maintenance able to fully understand the in-flight discrepancy as written in the 781A? Is job control notifying specialists in a timely manner to attend debriefing of aircrews with IFR problems? If not, inform the senior job controller.
- Discuss the fact that no two booms fly with the same performance characteristics. Have the maintenance technicians explain rigging procedures. This will enlighten the operator as to what the technician is up against when the writeup reads: "stiff boom" or "the boom does not trail at 30° and zero."

Keep the following hints in mind for future meetings of the panel:

- Notify all members of next meeting, date, time and location.
- Have previous minutes available to discuss any open items and review previous agenda topics. Trend identification is extremely important.
- Invite guests; the Deputy Commander for Maintenance may enjoy sitting in on your session.

These are some basic ideas and information on the purposes, formation and implementation of this program. It can, of course, be modified and tailored to suit the needs of your mission.

A Boom Reliability Panel can pay significant dividends. Give it a try and watch the improvement in reliability of a system essential to mission accomplishment. 

The Notam Maze

SIFC, Castle AFB



Pilots — when you ask your NAV or CP if the NOTAMs check OK, are you really sure the answer you receive is accurate?

NAVs and CPs — do you break out in a cold sweat when you check the NOTAMs because you aren't really sure how to do it?

If you have any doubt, spend the next few minutes with us investigating the ins and outs of the two NOTAM systems — military and civilian. The two NOTAM systems provide the most current and accurate information available on airports and facilities, published in both military and civil flight information publications. According to the U.S. Notice to Airmen (NOTAM) System regulation (AFR 55-16), "The US Military NOTAM system notifies personnel concerned with flight operations of the establishment, condition, or change of any aeronautical facility, service, or procedure that may be a hazard to flight." The Air Force Central NOTAM Facility (AFCNF) at Carswell AFB, TX is the overall manager of the military NOTAM system, covering all DOD air-



ports, joint-use airports, and approximately 325 civil airports. The AFCNF collects data (changes to information in FLIP) from a variety of sources. The largest input comes from Base Ops personnel. They relay information which describes changes in local operating conditions that affect flight operations, or inaccuracies found in FLIP. Similar information is extracted for selected civil fields from the Federal Aviation Administration (FAA) NOTAM system. Amendments or additional guidance to FLIP requiring immediate dissemination are collected from the Instrument Flight Center (IFC). The data from all these sources is correlated, formatted and incorporated to make up the military NOTAMs. A complete list of all active NOTAMs is called a summary; four different summaries are developed by the AFCNF. These are the North American (NAMSUM), European (EURSUM), Pacific (PACSUM), and Caribbean and South America (CSASUM). Most U.S. military bases carry only the NAMSUM, which is the focus of this article. Summaries are transmitted to users via the Air Weather Service (AWS) Communications Network.

NOTAM data are transmitted as either special notices or base/facility notices. The special notices cover a large area and meet one of the following three conditions:

(1) The information is so broad that it applies to all crew members regardless of departure base or destination (e.g., an amendment that the IFC might make to a FLIP document).

(2) The notice affects one or more control areas (e.g., ARTCC, Oceanic Central Areas, etc).

(3) It concerns communication frequencies or navigation aids that cannot be associated to any particular area or base (e.g., changes to LORAN, HF/SSB stations, etc).

Base/facility NOTAMs are specified in AFR 55-16 and must be sent for the following conditions:

a. When navigation facilities are being commissioned or decommissioned.

b. An interruption or return to operation, change of frequency, or change of identification of NAVAIDs.

c. An interruption of airport or ap-

proach lighting systems, other services and airfield restrictions that would prevent or limit aircraft operations.

d. Communication facilities and frequencies considered vital to the safe and orderly movement of aircraft.

e. Inaccuracies in FLIP that involve safety of flight.

f. In an emergency, publish an instrument procedure.

g. A procedural change to a published instrument procedure that is necessary for safety.

These two categories (Special Notices and base/facility information) represent all the NOTAMs that appear on the NOTAM board as a complete summary. The AFCNF develops and distributes updates hourly to keep information on the original summary as accurate as possible. Base Ops personnel must verify the information on their own bases, review the entire summary or hourly update for clarity and completeness, and post updates to the NOTAM board within 15 minutes. If Base Ops does not have a readable update for your route of flight or destination, they will advise you to call the destination airfield and/or one of the NOTAM briefing bases listed in section "C" of the Flight Information Handbook (FIH).

The system has changed only slightly in the past several years. The most subtle of these changes was deleting NOTAMs on enroute navigation facilities, unless the facility is associated with an airfield covered by the military NOTAMs. The latest change concerning the NOTAMs appeared in the legend of the 26 Sep 85 U.S. IFR Supplement. It deleted all NOTAM service code symbology except that used to indicate that an airfield is covered by the military NOTAM system. Additional guidance was added as a reminder to consult FAA NOTAMs.

Just as with the military system, the FAA NOTAMs are not designed to publish data that is already contained in a chart or publication, but is intended to keep published flight information current. FAA publication *Notice to Airmen (NOTAMs) Air Traffic Service* (7930.2) states, "A NOTAM is information not known sufficiently in advance to publicize by other means concerning the establishment, condition or change in any component (facility, service, or procedure) of or

hazard on the National Airspace system (NAS), the timely knowledge of which is essential to personnel concerned with flight operations." Although the basic concept is the same as the military, the FAA system must cover any civil landing area open to public use. This concept requires a system to accommodate a wide variety of airfields and users. The clearest description of the FAA NOTAM system is found in the Airmen's Information (AIM), portions of which are listed below.

a. NOTAM information is classified into three categories. These are NOTAM (D) or distant, NOTAM (L) or local, and Flight Data Center (FDC) NOTAMs.

(1) NOTAM (D) information is disseminated for all navigational facilities that are part of the National Airspace System (NAS), all IFR airports with approved IAPs, and for those VFR airports annotated with the Notam Service Symbol (S) in the Airport/Facility Directory (A/FD). The complete file of all NOTAM (D) information is maintained in a computer data base at the National Communications Center (NATCOM) located in Kansas City. This category of information is distributed automatically, appended to the hourly weather reports, via the Service A telecommunications system. Air traffic facilities, primarily FSSs with Service A capability, have access to the entire NATCOM data base of NOTAMs. These NOTAMs remain available via Service A for the duration of their validity or until published.

(2) NOTAM (L)

(a) NOTAM (L) information includes such data as taxiway closures, men and equipment near or crossing runways, airport rotating beacon outages, and airport lighting aids that do not affect instrument approach criteria, such as VASI. This category of NOTAM also contains all NOTAM information concerning airports that are not annotated with the Notam Service Symbol in the A/FD, including airport and runway closures.

(b) NOTAM (L) information is distributed locally only (public use airports pass information to local FSS), and is not attached to the hourly weather reports. A separate file of local NOTAMs is maintained at each FSS, for facilities in their area only. NO-

TAM (L) information for other FSS areas must be specifically requested directly from the FSS that has responsibility for the airport concerned.

(3) FDC NOTAMs

(a) On those occasions when it becomes necessary to disseminate information which is regulatory in nature, the National Flight Data Center (NFDC), in Washington, D.C., will issue an FDC NOTAM. FDC NOTAMs contain such things as amendments to published IAPs (FAA) and other current aeronautical charts (FAA). They are also used to advertise temporary flight restrictions caused by such things as natural disasters, or large scale public events that may congest air traffic over a site.

(b) FDC NOTAMs are transmitted via Service A only once, and are kept on file at the FSS until published or canceled. FSSs are responsible for maintaining a file of current, unpublished FDC NOTAMs concerning conditions within 400 miles of their facilities. FDC information concerning conditions that are more than 400 miles from the FSS, or that are already published, is given to a pilot only on request.

b. An integral part of the NOTAM System is the biweekly Notice to Airmen (Class II) publication. Data is included in this publication to reduce congestion on the telecommunications circuits, and therefore is not available via Service A. This information once published, is not provided during pilot weather briefings unless specifically requested by the pilot.

NOTE. The term "Class II" refers to the fact that the NOTAMs or notices appear in printed form for mail distribution as opposed to NOTAMs which are distributed via telecommunications. The latter are considered Class I.

(1) This publication contains two sections:

(a) The first section consists of notices which meet the criteria for NOTAM (D), and are expected to remain in effect for an extended period and FDC NOTAMs current at the time of publication. Occasionally, some NOTAM (L) and other unique information is included in this section when it will contribute to flight safety.

(b) The second section contains special notices that are too long or

cover a wide or unspecified geographic area and are not suitable for inclusion in the first section. The content of these notices vary widely and there are no specific criteria for their inclusion, other than their enhancement of flight safety.

You can see that both systems accomplish the same goal, namely providing the most recent changes to published flight information. The trick is trying to figure out exactly which system covers the fields we're going to use. As military aviators, we need to use both systems to have all the current information possible for flight. How do we go about checking the systems? Well, first we know that all military fields are covered by military NOTAMs. For civil fields, you must check the IFR supplement. If a diamond appears after the airfield's name, it is covered by the military system, and your search ends. If there's no diamond, it's covered by the FAA NOTAMs. In that case, we then have to check the National Oceanic and Atmospheric Administration (NOAA) Airport Facility Directory to find out how the airfield is covered and who we need to call to get the current FAA NOTAMs.

If the airfield is covered by the (D) NOTAMs data base, we may call any FSS to find out about NOTAMs that would affect our decision to go to that airfield. We would also have to call the FSS serving that airfield to receive any (L) NOTAMs. If the airfield is **not included** in the (D) NOTAMs data base, we must call the FSS serving that airfield to learn of any current NOTAMs that apply.

The class II **Notices to Airmen** must also be checked as they are applicable to both the military and FAA NOTAM systems. Information that appears in the class II notices will not be included in the class I distribution system. The diagram below should help highlight which NOTAMs to check.

The October "Crosscheck" contained an inadvertent error. On page 16, the third column, the sentence beginning with "ICAO procedures . . ." should have read: ICAO procedures state that the "runway environment" should be kept in sight while circling. Runway environment is defined as the runway threshold or approach lighting aids or other markings identifiable with the runway. — Ed.

FOR MILITARY AIRCRAFT

	IF THE FLIGHT INVOLVES	
	MILITARY FIELD	CIVIL FIELD
MILITARY NOTAMS _____	X	X
FAA NOTAMs		
CLASS I		
(D) _____	X	X
(L) _____		X
CLASS II		
SECTION 1		
GENERAL _____	X	X
AIRWAYS _____	X	X
FLIGHT RESTRICTIONS _____	X	X
AIRPORTS/FACILITIES _____		X
SECTION 2		
SPECIAL NOTICES _____	X	X
One thing you won't find in the NOTAMs is our phone number. It's Autovon 347-4571, give us a call if you get lost in the NOTAM maze.		

Heads Up

Crew R-183P, 70 AREFS, Grissom AFB, departed Ellsworth AFB recently on a routine night training mission. The young crew was commanded by 1Lt Michael T. Meyer and included 1Lt Scott S. Peterson, co-pilot, 1Lt Christopher D. Wilson, navigator, and TSgt Lorin A. Derry, boom operator. This was their first flight together as an integral crew and was one of Lt Meyer's first solo flights as a new aircraft commander. His EC-135 was number two in a MITO behind another EC-135. Both aircrews were TDY to Ellsworth AFB for the summer due to runway resurfacing at Grissom AFB. After a normal takeoff and climbout, and following cell breakup, the crews found that the forecast weather along their routes had turned into a long, rapidly building line of thunderstorms. After picking their way through the hazardous buildups, the aircraft rejoined 100 miles north of Offutt AFB to conduct night air refueling training on AR105.

Crew R-183 arrived at the ARIP to find IFR conditions as high as FL310, but visibility permitted a normal rendezvous. Just after the second contact and disconnect, Lt Wilson stated that his radar had died. TSgt Derry found the circuit breaker popped, and reset it, only to have it pop again several minutes later. Soon after, the radar blew several fuses and lost power completely. Just prior to the next contact, TSgt Derry reported 10 more circuit breakers popped, and read off the systems affected — EPR gauges, pilot's gyro, TEST power, radar and cabin temperature control. While the crew confirmed the lost systems, Lt Peterson completed a check of the electrical system and found all indications normal with no failed generators or TRs. The crew terminated air refueling operations and requested an

escort back to Ellsworth from their tanker. The pilot coupled his instruments and the autopilot to the INS platform and they began to function normally. The boom operator then reported loss of electronic cabinet cooling. The navigator instructed the boom operator and the communications crew to remove the cabinet panels immediately to provide emergency cooling. The communications crew

then shut down all back end equipment. While returning to Ellsworth AFB, the pilot lost his gyro system again and the navigator reported the INS inoperative. The boom operator confirmed the popped CBs and read off more lost equipment: autopilot, NI compass, DNS, stab trim. Suddenly the cockpit went dark. With the rapid loss of equipment due to an unknown malfunction in the electrical system,



(L-R): 1Lt Michael T. Meyer, P, TSgt Lorin A. Derry, BO;

Flying Club



Christopher D. Wilson, N; and 1Lt Scott S. Peterson, CP.

the crew feared a possible electrical fire and declared an IFE with ARTCC. Because of the possibility of severe weather at Ellsworth, the navigator suggested a recovery at Offutt AFB, which was VFR.

With all of the aircraft's navigational equipment inoperative, the crew requested an ARTCC vector to Offutt and had started their enroute-descent when the transponder CBs popped and would not reset.

With only the copilot's instruments functioning off the aircraft's hydraulically operated generator, the copilot took control of the aircraft and normal checklists were accomplished. The instruments were readable with the aid of a flashlight.

By this time, all equipment had either been shut down or lost except for the two command radios and the copilot's instruments. On a 25 mile final, the gear was lowered

and confirmed down. Seconds later, both TRs failed and there was total silence in the cockpit. Communications were reestablished by moving the battery switch to emergency. The boom operator reset the communications CBs and the navigator continued coordination through command post for the IFE. The copilot continued to fly the aircraft while the pilot ran checklists and informed approach control of their radio problems. Flaps were lowered, and because the flap indicators were inop, the boom operator and the communications crew visually confirmed the final flap setting. Approach control then issued a strong wind shear advisory, and the crew elected to increase airspeed by 15 knots. Trimming was now being done by use of outboard spoilers. The landing would have to be performed without the use of external lighting. Lt Meyer, who was familiar with the airfield, took control of the aircraft approaching short final. The boom operator reset the CB for the pilot's instruments which fortunately held, providing lighting for final approach. As the crew performed before landing safety checks and ensured all back-end personnel were strapped in, they hit the reported wind shear. The aircraft quickly lost 15 knots and entered a mild wing rock. However, control was maintained and a normal touchdown accomplished. During the landing rollout, interior lighting failed once again and a strong smell of overheated electrical equipment engulfed the cockpit.

After parking and engine shut-down, 57 circuit breakers were discovered popped on the electrical panel! Despite these multiple compounding problems, superb coordination, outstanding systems knowledge and airmanship by a young crew brought the aircraft down safely. Well done!



PROFESSIONAL PERFORMERS

Aircraft Maintenance

SrA Darrell E. Bandy, 97 BMW, Blytheville AFB, is SAC's Maintenance Airman of the Month.

Assigned to the navigation shop as swing shift su-



pervisor, Airman Bandy consistently performs at 100 percent. His technical competence, knowledge and leadership skills played a vital role in the 97 BMW's recent ORI, resulting in an "excellent" rating for the squadron and the best damage expectancy ever achieved in SAC. Airman Bandy was also named an "outstanding performer" during the most recent MSET visit. His bench check of the RT289/APN59 search and weather radar receiver transmitter was identified as "the best I've ever seen" by the inspector. In order to improve the navigation shop's overall capability, Airman Bandy uses indepth knowledge of the APN 59 system to conduct week-long classes for trainees, stressing safety, accuracy and technical competence. These classes are on a one-on-one basis and are followed by a test and critique. Airman Bandy also contributes his off-duty time toward solving more difficult equipment programs. In an effort to improve maintenance procedures, he designed a B-52 TACAN relay box assembly tester which he is building at this time. This innovative project will reduce a former one hour job to five minutes and will also limit unnecessary delays and deviations in scheduled bomber sorties.

Munitions Maintenance

SSgt Kurtis J. Lodge, 42 BMW, Loring AFB, is SAC's Munitions Maintenance Airman of the Month.

As crew chief in the conventional munitions section, SSgt Lodge has performed his duties flawlessly. His "can do" attitude has been contagious and has increased morale and promoted harmony within his section. The outstanding condition of the munitions stockpile is directly attributable to his leadership. His demand for quality during the assembly of BDU-8 and BDU-38 weapons insured all technicians followed technical data, thus guaranteeing all munitions would function as designed for aircrew delivery during Red Flag. He demonstrated outstanding technical knowledge and supervisory skills in providing initial training on MHU20AC clip conversions to allow mating of MK55/56/60 naval mines to clips for internal carriage aboard B-52 aircraft. SSgt Lodge's ingenuity and patience were again tested during the initial assignment of the Harpoon weapons system to Loring. Upon its arrival, two unsuitable MK45 hand lift trucks were assigned at a cost of \$15,000 each. These lift trucks did not fit the handling requirements at Loring. SSgt Lodge imme-

diately designed a casting system at an approximate cost of \$400 which eliminated the need of the \$15,000 hand lift trucks. This design not only saved the Air Force money but it also provided a simple, reliable piece of equipment.



Malmstrom AFB's Crew S-100, consisting of Capt Ernest L. Kuhlmann, MCCC, and 2Lt Timothy D. Dickey, DMCCC, is SAC's Missile Crew of the Month.

Less than 30 minutes after assuming alert recently, the crew was notified that the alarm response team (ART) had rolled their vehicle approximately one mile from a launch facility (LF). The vehicle had come to rest on its top and fuel was leaking from the gas tank. The crew immediately realized that radio transmissions from the accident scene could possibly result in fire or explosion and took measures to ensure that transmissions were restricted. Wing Command Post (WCP) was advised of the serious situation and what followed was intense coordination with the local sheriff's authorities and a medical evacuation team. Further crew expertise was demonstrated when confronted with additional alert activities. Security police investigation of an inner zone security alarm at another LF was completed with negative hostile findings. However, they detected a faulty inner zone security alarm. The crew notified wing job control (WJC) of the requirement to repair the faulty security system and ensured that guards were posted to maintain proper security until the problem could be fixed. The crew also responded to commercial power problems at seven of ten LFs and updated WJC with current and changing environmental control system and power transfer status. Carefully checking weapon system indications, the crew verified that no overheat condition threatened the missile and that bat-

Missile Crew



tery operation was kept to a minimum. Either condition would have required an emergency maintenance response. The quick reactions and poise under stress demonstrated by crew S-100 reflect great credit on themselves and the unit.

Missile Maintenance



Sgt Ricky T. Gaylor, 321 SMW, Grand Forks AFB, is SAC's ICBM Maintenance Airman of the Month. Assigned to the missile handling team section, Sgt Gaylor's outstanding performance has been recognized by MAJCOM evaluators. During a recent Operational Readiness Inspection (ORI) he accomplished a missile removal, an aircraft on/off load, and a missile forward/backroll. Sgt Gaylor was selected as a SAC Inspector General "Professional Performer." He also received one "Highly Qualified" and four "Qualified" ratings for his exceptional skill while performing maintenance for the 3901st Strategic Missile Evaluation Squadron (SMES) evaluators. In addition, Sgt Gaylor has a superb record: over the past two years he has earned six "Highly Qualified" and 38 "Qualified" ratings. He has participated in the successful test launch of a MINUTEMAN III ICBM on Glory Trip 107GB. Sgt Gaylor was selected in May 1985 as the 321 SMW "Hats Off Performer" for outstanding performance as a training NCO during a missile emplacement and removal.

CROSS SAFETY FEED

GROUND SAFETY

Man's Best Friend?

An off duty SrA went to the base kennel to visit his military working dog. The animal was in a foul humor and difficult to handle. As the airman tried to sooth him, the dog bit him in the face.

It'll Happen Every Time

A MSgt driving nails into a piece of lumber failed to wear eye protection. You guessed it. A misstruck nail hit him squarely in the eye.

Evel Knievel

A Sgt on a three wheel all terrain vehicle (ATV) attempted to perform a "death-defying" jump over a 40 foot open area. The act fizzled when the ATV flipped, tossing the driver over the handlebars. He suffered a broken neck and loss of enthusiasm for that particular stunt.

A Strained Relationship

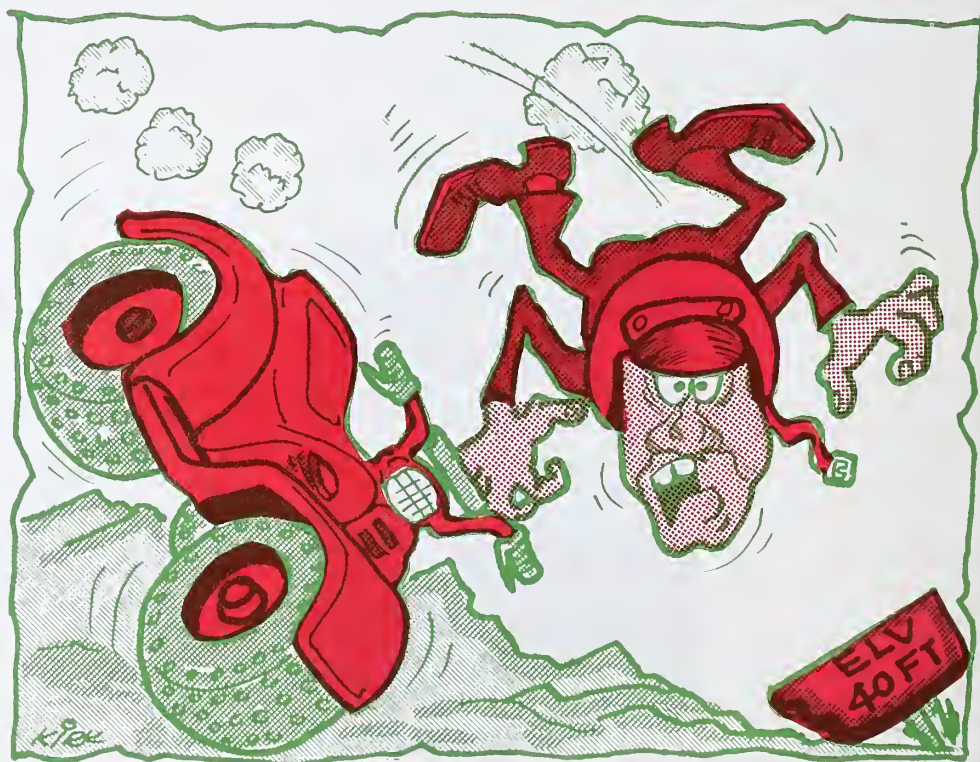
An AIC and a companion were joy riding on their ATV's when the lead cyclist fell and was run over by his friend's vehicle. The injuries included multiple cuts and bruises and a damaged friendship.

How to Lose a Stripe

Elated over his promotion, a Sgt got drunk, drove too fast and crashed into a telephone pole after missing a turn due to excessive speed. No more promotion parties.

Where Did He Come From?

An airman was seriously injured while observing the scene of a vehicle mishap when another car piled into the original wreckage.



FLYING SAFETY

Warning! Birds Can Be Hazardous to Your Health

How much damage can a bird inflict on a B-52? Postflight inspection after a recent bird strike revealed a 22x10 inch hole in the right wing leading edge, damage to two environmental ducts and a fuel cell duct. Need any more encouragement to keep your visor down at low level?



WEAPONS SAFETY

I Told You It Wasn't Safe ...

Recently a range NCOIC removed a BDU-33, previously declared safe by EOD personnel, from the range compound to a clear area. Suspecting that the BDU-33 still had a live spotting charge, he placed it on a timber, backed off 30 feet and using a small caliber rifle fired a round into the nose. The spotting charge exploded, propelling the firing pin mechanism into the NCO's leg behind the right knee.

These Things Are Getting Old

A loaded transporter erector (TE) was returning to the support base, following a MINUTEMAN II removal. While ascending a steep hill, a fifth wheel actuator failed, the TE lost longitudinal stability and overturned on its left side. Later, a different TE was enroute to the same site, on the same road, when the kingpin came loose from the fifth-wheel assembly. Fortunately, the trailer did not separate from the tractor.

Hot Wheels

An RV/G&C van was returning to the support base when its right rear dual wheels separated. Luckily a passenger noticed the resulting sparks and alerted the driver to stop before major damage occurred.





Capt James F. Diehl
HQ SAC/IGWM

Do you know what electrostatic discharge (ESD) is and what impact it has on your weapon system's reliability? If your answer to these questions is "no," don't be embarrassed. ESD is a relatively new and little understood threat to our weapon systems. Only with the recent technological advances in microelectronics has ESD become an issue.

Well then, what is ESD? It's the same electrical charge that produces a shock when you walk across carpeting. ESD is generated by the relative motion or separation of materials or the flow of liquids, vapors or gases. Many ESD sensitive devices such as microcircuits, discrete semiconductors, thick and thin film resistors, chips, hybrid devices and piezo-electric crystals can be damaged or destroyed by ESD levels of a few hundred volts, far below our threshold of awareness (around 4,000 volts).

Can ESD really impact the reliability of the ICBM weapon system? No one knows for sure . . . yet! However, ESD damage in other weapons systems would indicate that we in the ICBM business could very well be victims of ESD and not know it. For example, the guidance and control subsystem of the Maverick AGM-65 missile system was found to have a video preamp hybrid chip which would experience damage following the removal and replacement of another component. ESD was found to be the cause of the damage. A survey of the static charges at the work station found that charges existed on the technician in the range of 200 to 600 volts, and 18,000 and 20,000 volts on a plastic solder sucker and a heat gun, respectively. These are significant voltages since the current microtechnology has resulted in parts which can be destroyed or damaged by ESD voltages as low as 20 volts. Even more significant is that ESD-caused failures do not always occur immediately following exposure, but may occur later under stress,

or may be damaged in a way that degrades operation of a subsystem.

Is it really worth the extra effort to provide ESD protection for equipment that for years we handled without regard to ESD? Yes, because a very real possibility exists that our ICBM reliability could be enhanced through the implementation of relatively low cost ESD controls. These controls include obtaining ESD protective equipment and materials, and properly handling ESD sensitive equipment. ESD protective equipment and materials are inexpensive and may be ordered through the supply system. Mr Robert Bennett, the OO-ALC ESD Monitor (Autovon 458-4495), has a complete listing of ESD protective equipment and materials to include description, national stock number, source, cost, unit of issue, and size. It is only a little more difficult to ensure that ESD sensitive equipment is properly handled because it is an on-going process and it involves more than one agency. Currently, E-Lab technicians are trained and practice proper handling procedures, but how about equipment handlers found in base supply and the maintenance processing function? Do these people know what ESD is and how to handle ESD sensitive items? A viable ESD control program requires the education of everyone who handles ESD sensitive equipment . . . this includes agencies outside of E-Lab. Within E-Lab, training and strict adherence to proper handling procedures must continue.

As we become more knowledgeable about ESD, our technical data will improve and depot will continue to identify ESD-sensitive equipment. In the meantime, we all need to take what information is available and get on the ESD bandwagon. The potential benefits far outweigh the costs. For more information on ESD, contact Mr Bill Thompson, OO-ALC (Autovon 458-7558).

Headquarters SAC point of contact: Capt James F. Diehl, IGWM, 271-4582.

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The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system IAW AFR 127-2/SS1.

340 BMS, Blytheville Crew R-14: P Capt Rodney G Templeton, CP 1Lt Ted M Williams, RN Capt Charles M Cook, NN 2Lt Kenneth Lang, EW 1Lt Keith B Bartsch, AG SSgt Russell B Combs

340 BMS, Blytheville Crew R-21: P Capt Frederick H Reinhardt, CP Capt Loring G Johnson, RN Capt Warren J Hingst, NN 1Lt Danny C Wright, EW 1Lt Richard C McEachin, AG A1C Michael D Crockett

97 AREFS, Blytheville Crew R-125: P Capt Joseph P Lepanto, CP Capt Robert Whittenberg, N 2Lt Vincent L Elliott, BO SSgt John R Williams

97 AREFS, Blytheville Crew S-115: P Capt Paul T Vinci, CP 1Lt David E Cantor, N 1Lt Kenneth N Shaffer, BO Sgt Ronald S Weeks

99 AREFS, Robins Crew E-172: IP Maj James K McKinley, CP 1Lt David L Reynolds, NN 1Lt Gregory D Frederick, BO TSgt Alwin R Moser

912 AREFS, Robins Crew E-114: IP Capt Jimmy W Rubalcaba, CP 1Lt Rand L Brown, NN 1Lt John F Decatsye, BO Amn Jonathon M Rion

416 BMW, Griffiss Crew R-104: P Capt David O Norton, CP 1Lt Charles J Englert, N 1Lt Robert R Baker, BO SrA Melanie B Potter

416 BMW, Griffiss Crew S-101: P Maj Robert M Furbush, CP Capt Roger H Ducey, N Capt Daniel S Yinger, BO SSgt Tina M Skrzypiec

320 BMW, Mather Crew E-107: P Maj Robert S Stusnick, CP 1Lt Grant D Gillham, CP 2Lt Jerome S Johnson, N 1Lt Mark B Ott, BO Amn Eric E Siperly

320 BMW, Mather Crew E-103: P Capt Michael G Murakami, CP 1Lt David P Lawlor, N Capt Charles A Grimes, BO SSgt Robert L Beth

24 SRS, Eielson Crew E-04: IP Maj Ronald B Pless, CP Capt James A Gregory, N-1 Capt Philip A Soper, N-2 Capt Kevin E Tyus

24 SRS, Eielson Crew R-15: TC Capt Gregory L Murphy, R1 1Lt Jeffrey A Koonz, R2 Capt David L Hertzberg, R3 1Lt Dale R Smith, R4 Capt Douglas R Callihan, PT Sgt James S Sammann, ET SSgt Scott H Astern

28 AREFS, Ellsworth Crew E-105: P Capt Richard E Antaya, CP 1Lt Raymond E Lamarche, IN Capt Norman M Cortese, BO A1C Edward J Paver Jr

44 SMW, Ellsworth Crew E-080: MCCC Capt Guillermo L Diaz, DMCCC 1Lt Michael D Brice

9 BMS, Carswell Crew E-84: AC Capt John M Edens, CP 1Lt George M Gover, RN Capt Phil R Pohl, N 1Lt Tim R Malinski, EW 1Lt Mark D Farmer, G SSgt Steven L Gregorich

308 SMW, Little Rock Crew E-084: MCCC Capt Rick Chronabery, DMCCC 1Lt Maurice Kilpatrick, MSAT Sgt David Johnson, MFT SSgt George Presnell

532 SMS, McConnell Crew S-016: MCCC Capt David A Scott, DMCCC 1Lt James P Gayton, MSAT SSgt Federico Flores Jr, MFT Sgt Thomas M Orton

7 AREFS, Carswell Crew R-121: AC Capt Gerald A Heater Jr, CP Capt Jeffrey Labudde, N 1Lt Michael G Birdsong, BO Amn Kent R Schill



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